

National Elk Refuge News – July 6, 2006

Irrigation Program



Wheel line sprinklers are one tool used to irrigate cultivated grasslands on the National Elk Refuge.

Little did John Holland and John Carnes know the results of their hard work would still be in use over 120 years later.

Holland and Carnes, the first to file homestead claims in the Jackson Hole valley, settled and farmed on land that is now part of the National Elk Refuge. In addition to filing for the first homesteads in 1883, they were the first to construct an irrigation ditch that would bring additional water to their land and increase hay production. The ditch came out of a headgate located 200 feet below the confluence of Sheep and Twin Creeks and counted toward the improvements required by

the Homestead Law. Though the two men only stayed in the valley until 1890 and 1895 respectively, their irrigation ditch still remains, serving as one link in the intricate network of ditches that are used to irrigate the Refuge today.

The National Elk Refuge manages the 24,700 acres within its boundary as elk winter range by providing an adequate natural and supplemental winter food supply. Through practices such as irrigation, seeding, fertilizing, prescribed burning and water development, the National Elk Refuge produces as much standing forage as possible. Cultivated grasslands make up

approximately 2,400 acres of the National Elk Refuge. They are planted specifically to augment native forage available for elk in the winter and are used extensively by elk and bison. Cultivated species are chosen based on their palatability, persistence, ability to compete with weeds, low probability they will invade native grasslands, and ability to stand up after a heavy snowfall.

Key to the success of producing standing forage is water. In addition to natural watercourses such as the Gros Ventre River, Flat Creek, Nowlin Creek, Cache Creek and several other small creeks and springs, there are many miles



With sprinklers spreading water in the background, irrigator Chad Ridgeway surveys a field of orchard grass and meadow brome.

of irrigation ditches crossing the Refuge that bring water to the cultivated fields. The water flow is controlled by screwgates, stop logs and canvas dams maintained and operated by Refuge staff.

Historically, cultivated fields on the Refuge were flood irrigated, using the ditch system created by homesteaders. Water was diverted from area watercourses or sources, then conveyed through the open irrigation ditches. It was directed onto fields by using permanent water control structures or temporary check dams.

Flood irrigation, however, is a very labor intensive process. The National Elk Refuge has one permanent employee to oversee irrigation operations, with five seasonal employees hired to now do the work once done by as many as 15 employees. “Budget cuts have taken a toll,” explains Steve Brock, Deputy Refuge Manager. “We have to tap into

non-government funds to hire our seasonal irrigators, primarily with proceeds from the annual antler auction.”

In addition to the manpower needed to conduct flood irrigation, the soils found in the irrigated areas of the Refuge are generally a gravelly loam that permeates rapidly. Because the soil is so porous and doesn’t hold water well, some areas tend to dry out quickly. High spots may not receive any water at all when the field is flood irrigated.

In the last decade, Refuge managers have been incorporating more sprinkler irrigation for moving water from the ditches to the fields. Though still a labor dependent process, sprinkler systems provide a better disbursement of water on the land and irrigate greater areas of the Refuge more efficiently. Both hand line and wheel line sprinkler systems are used on the Refuge,

with a pivot sprinkler expected to arrive this summer. The pivot is a stationary piece of equipment that will irrigate an additional 120 acres.

A draft Bison and Elk Management Plan and Environmental Impact Statement, expected to be completed later this year, will be used as future guidance for the Refuge’s irrigation program. The plan evaluates six alternative approaches for managing bison and elk on the National Elk Refuge and in Grand Teton National Park and John D. Rockefeller, Jr., Memorial Parkway for a 15-year period. Each alternative outlines the objectives for forage production on the Refuge, along with irrigation and farming strategies; several call for producing more standing forage and better quality forage that would provide grazing habitat for a longer period of time as snow conditions allow, delaying feeding and thus reducing concentrations of elk and bison and the potential spread of disease.



Employees install a sump that will house a filter. The filter will screen water before it is diverted to the new pivot.



Above and right: Seasonal irrigators use portable canvas dams to move water through irrigation ditches and flood irrigate fields.



Hand line irrigation pipes are moved in sections throughout the summer to various fields.
